

What is claimed is:

1 1. A method of a PPPoA (point-to-point (PPP) over asynchronous transfer mode
2 (ATM)) spoofing function in an asymmetric digital subscriber line (ADSL) modem, comprising the
3 steps of:

4 forming a single network between a client personal computer (PC) and a network access
5 server (NAS) by allowing the ADSL modem to make a PPP connection to the NAS when the client
6 PC is booted, by allowing the NAS to transmit Internet protocol (IP) configuration information,
7 including a global IP address, to a DHCP server of the ADSL modem through a PPP Internet
8 protocol control protocol (IPCP), and by allowing the ADSL to transfer the IP configuration
information received from the NAS to the client PC;

 forming a bridge by the ADSL modem between the client PC and the NAS and transferring
IP packets between the client PC and the NAS; and

 allowing the NAS to withdraw the global IP address assigned to the client PC when one of
the client PC and the ADSL modem is turned off.

2 2. The method as set forth in claim 1, the step of forming a single network comprising
a step of producing a minimum subnet mask consisting of the global IP address and a gateway
address.

1 3. The method as set forth in claim 1, the step of transferring IP packets between the
2 client PC and the NAS comprising the steps of:

3 allowing the NAS to add a PPP header to the IP packet when the IP packet is transferred from
4 the client PC to the NAS; and

5 allowing the ADSL modem to delete the PPP header from the IP packet when the IP packet

6 is transferred from the NAS to the client PC.

1 4. The method as set forth in claim 1, the step of forming a single network comprising
2 the steps of:

3 sending a DHCPDISCOVER message to the ADSL modem from the client PC;

4 sending a DHCPOFFER and to the client PC from the ADSL modem in response to the
5 DHCPDISCOVER message, said DHCPOFFER message including said IP configuration
6 information.

1 5. The method as set forth in claim 1, further comprising the steps of:

2 sending a DHCPREQUEST message to the ADSL modem to obtain a new lease time to
3 prevent the NAS from withdrawing the global IP address assigned to the client PC after a lease
4 renewal time expires; and

5 sending a DHCPACK message from the ADSL modem to the client PC, said DHCPACK
6 message including said IP configuration information.

1 6. An apparatus for performing a PPPoA (point-to-point (PPP) over asynchronous
2 transfer mode (ATM)) spoofing function in a PPPoA system, comprising:

3 a client personal computer (PC);

4 an network access server (NAS); and

5 an asymmetric digital subscriber line (ADSL) modem including:

6 an ATM layer, a PPP layer, an Internet protocol (IP) layer, a user datagram protocol
7 (UDP) layer and a DHCP server, said ADSL modem completing a single network connection
8 between said client PC and said NAS by forming a PPP connection to said NAS when said
9 client PC is booted, by receiving at said DHCP server, through an Internet Protocol control

10 protocol (IPCP) of said PPP layer, IP configuration information, including a global IP
11 address transmitted from said NAS, and by transferring the IP configuration information
12 received from the NAS to the client PC to enable said ADSL modem to form a bridge
13 between said client PC and said NAS to allow IP packets to be transferred between said
14 client PC and said NAS.

1 7. The apparatus as set forth in claim 6, wherein said NAS withdraws the global IP
2 address assigned to the client PC when one of the client PC and the ADSL modem is turned off.

1 8. The apparatus as set forth in claim 6, wherein said IP configuration information
includes a subnet mask consisting of said global IP address and a gateway address.

1 9. The apparatus as set forth in claim 6, wherein a header generation/extraction (HGE)
portion of said PPP layer of said ADSL modem adds a PPP header to the IP packet when the IP
packet is transferred from the client PC to the NAS; and

a header generation/extraction (HGE) portion of said PPP layer of said ADSL modem deletes
the PPP header from the IP packet when the IP packet is transferred from the NAS to the client PC.

1 10. The apparatus as set forth in claim 6, wherein said client PC sends a
2 DHCPDISCOVER message to the ADSL modem, and said DHCP server sends a DHCPOFFER
3 message to said client PC in response to the DHCPDISCOVER message, said DHCPOFFER
4 message including said IP configuration information.

1 11. The apparatus as set forth in claim 6, wherein said client PC sends a
2 DHCPREQUEST message to the ADSL modem to obtain a new lease time to prevent the NAS from

3 withdrawing the global IP address assigned to the client PC after a lease renewal time expires, and
4 said DHCP server sends a DHCPACK message to the client PC in response to the DHCPREQUEST
5 message, said DHCPACK message including said IP configuration information to allow said lease
6 time to be renewed.

1 12. The apparatus as set forth in claim 6, wherein said NAS withdraws the global IP
2 address assigned to the client PC when a lease time expires.

1 13. The apparatus as set forth in claim 12, wherein said client PC sends a
2 DHCPREQUEST message to the ADSL modem to obtain a new lease time to prevent the NAS from
3 withdrawing the global IP address assigned to the client PC after a lease renewal time expires, and
4 said DHCP server sends a DHCPACK message to the client PC in response to the DHCPREQUEST
5 message, said DHCPACK message including said IP configuration information to allow said lease
6 time to be renewed.

1 14. The apparatus as set forth in claim 6, wherein said IP configuration information
2 includes a domain name system (DNS) server address consisting of a primary-DNS-address and a
3 secondary-DNS-address.